

LISTING OF CLAIMS


The listing of claims below will replace all prior versions and listings of claims in the application:

Claims 1-18 (cancelled).

Claim 19 (currently amended). A method of bone repair comprising the step of applying a composition comprising a porous, biodegradable three-dimensionally ~~stable~~ fixed matrix having shape retention comprising a bound network of water-insoluble ~~mineralized~~ biopolymer mineralized by formation of mineral ~~having mineral immobilized~~ thereon and a water-insoluble binder effective to promote bone growth at a desired site of bone repair.

Claim 20 (previously added). A method according to claim 19 wherein the shape retention of said matrix is maintainable without fragmentation upon implantation.

Claims 21-23 (canceled).

 Claim 24 (previously added). A method according to claim 19 wherein said biopolymer comprises collagen.

Claim 25 (previously added). A method according to claim 19 wherein said binder comprises collagen.

Claim 26. (previously added) A porous, biodegradable, three-dimensionally fixed matrix for the replacement of bone comprising a bound network of water-insoluble biopolymer fibers, mineral, and a water-soluble binder rendered insoluble by cross-linking wherein said mineral is immobilized within said matrix by said binder.

Claim 27. (previously added) A matrix according to claim 26 which maintains physical integrity for a period of at least about three days after implant into a physiological environment in which bone replacement is occurring.

Claim 28. (previously added) A matrix according to claim 26 wherein said binder is selected from the group consisting of soluble collagen, gelatin, polylactic acid, polyglycolic acid, copolymers of lactic and glycolic acid, polycaprolactone, carboxymethylcellulose, cellulose esters, dextrose, dextran, chitostan, hyaluronic acid, ficol, chondroitin sulphate, polyvinyl alcohol, polyacrylic acid, polypropylene glycol, polyethylene glycol, water-soluble polyacrylates and water-soluble polymethacrylates.

Claim 29. (previously added) A matrix according to claim 26 wherein said biopolymer fibers comprise fibrillar collagen.

Claim 30. (previously added) A matrix according to claim 26 wherein said mineral comprises calcium phosphate.

Claim 31. (previously added) A matrix according to claim 26 wherein said mineral comprises hydroxyapatite.

Claim 32. (previously added) A matrix according to claim 26 wherein said mineral consists of particles of a diameter of no greater than about five microns.

Claim 33. (previously added) A matrix according to any one of claims 26 through 32 further comprising autologous bone marrow.

Claim 34. (previously added) A matrix according to any one of claims 26 through 32 further comprising autogenous bone.

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Claim 35. (previously added) A matrix according to any one of claims 26 through 32 further comprising one or more bone growth factors.

Claim 36. (previously added) A method of bone repair comprising the step of applying a composition comprising a porous, biodegradable, three-dimensionally fixed matrix comprising a bound network of water-insoluble biopolymer fibers, mineral and a water-soluble binder rendered insoluble by cross-linking wherein said mineral is immobilized within said matrix by said binder, in an amount effective to promote bone growth at a desired site of bone repair.

Claim 37. (previously added) A method according to claim 36 wherein said matrix has shape retention maintainable without fragmentation upon implantation.

Claim 38. (previously added) A method according to claim 36 wherein said biopolymer comprises collagen.

Claim 39. (previously added) A method according to claim 36 wherein said binder comprises collagen.

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Claim 40. (new) A matrix according to Claim 28 wherein said binder comprises collagen.
